



A Party to Connect People to Plants

On the evenings of February 11 and 12, the Wellesley College community welcomed back the tradition of an annual greenhouse Light Show after a hiatus of two years. First of its kind in the Global Flora conservatory, this year's Light Show was themed "Cultural Connections" to celebrate the diversity of plants in Global Flora and their cultural significance to people around the world.

Dressed by colorful theatrical lighting and spotlights, highlighted plants showcased characteristics that one might not otherwise notice during the day. Many were surprised to see, for example, that the foliage of Sensitive Plant (*Mimosa pudica*) closes at night to protect pollen and reduce water loss when the leaves are not photosynthesizing. From the Golden Barrel Cactus (*Echinocereus grusonii*), a rare species endemic to east-central Mexico where the flesh of the cactus is candied and eaten as a treat, to the Banyan (*Ficus benghalensis*), the national tree of India where the tree holds great symbolic, spiritual, and religious significance, visitors traveled across continents as they walked from the Dry Biome to the Wet Biome. Conversations about plants filled the conservatory thanks to a group of plant-enthusiast volunteer docents who delivered lightning talks about the highlighted plants.

In sync with the dramatic visual effect of the dazzling lights whose reflections danced on the ceiling of Global Flora, musical performances by faculty and students turned the show into a symphony of both light and sound. The Fiddleheads, a student-run



Visitors enjoyed a Global Flora transformed by light and sound.

Celtic music ensemble, engaged crowds of visitors with their lively performance on the greenhouse mezzanine. With its enormous, curving fiddleheads growing toward the ceiling, the towering tree fern provided the perfect backdrop for the stage.

The multi-sensory experience captivated a diverse crowd of visitors. "I loved the light show!" Eva Paradiso '20 said. "The arrangement of the lights gave me a different view of the

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NOTES from the Director

Greetings from Wellesley! Dare I write that this is a winter that wasn't, when we could still get a blizzard or two? When February sightings include lots of buds slipping, the first bulbs flowering, and open water in Paramecium Pond, it's hard to know how spring will proceed. The Horticulture class is monitoring spring phenology in the Edible Ecosystem garden from the beginning of March, rather than starting

of the interior north wall absorbs that heat and re-radiates it overnight, buffering the nighttime temperature drop as designed. Minimum nighttime temperatures were in the 50's, not a problem for the mostly subtropical plants in the collection. The Durant Camellia got its preferred cooler temperatures, not possible in the old greenhouse, and bloomed nicely.

An exciting winter event was the first Light Show in the new greenhouse, designed and executed almost entirely by

(sketching a newly developing leaf in comparison with a mature one) to various adaptations (comparing epidermal surfaces of their plants to nearby, very different ones). The fact that the plants are natural species rather than cultivated varieties makes it possible to delve into adaptation, evolution, and biodiversity as well as plant morphology, physiology and development with this remarkable collection.

The outdoor gardens also have continued to grow in educational value, thanks to the dedication of Tricia Diggins and new ideas (and new species) brought in by Katherine Brainard. Katherine finishes up her year-long Fellowship with us this month, and begins an exciting job as Horticultural Manager for the Rose Kennedy Greenway in Boston. She learned a lot from Tricia, and the gardens and students benefitted from their partnership. We miss Tricia already, and are actively searching for someone who can begin to fill her shoes. See page 5 for a tribute to Tricia and her career in the gardens.

Tony Antonucci, Rob Nicholson, Jenn Yang and I continue to share the Creighton Room in the Botanic Gardens Visitor Center as temporary office space that doubles as a work area for student assistants, often running into Gail Kahn and Eileen Sprague's office to print plant labels or class handouts. We're looking forward to the completion of the new science building that will include offices as well as a headhouse/potting area, sometime in the next two years. At that point we should be able to open Global Flora to the public and resume outreach programming in the Visitor Center. In the meantime, we have our hands full with projects and lots of talented and enthusiastic students!

With best wishes for a beautiful spring season,

Kristina

Kristina Niovi Jones, Director
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Horticulture students examining plant adaptations in the Dry Biome of Global Flora.

late in the month as usual, in order not to miss bud break. We've certainly had a lot more rain than snow so far in 2020, before the official start of spring.

It's also been a gentle first winter for the Global Flora greenhouse. With the huge transparent ETFE spans letting the sun in throughout the day, the indoor habitats warm up quickly. The remaining big trees on the hill below are all deciduous, politely letting plenty of light through to the greenhouse at this crucial time with the sun low in the sky. And the large thermal mass

of our two wonderful Thorndike Interns, Ashley Bisram '22 and Yuxi Xia '20. With student docents and musicians on the mezzanine, the show brought in students who had not seen Global Flora before.

Teaching with Global Flora as a resource is just amazing. It is so easy to convince students that plants are cool when there is an incredible diversity that they experience directly. In the Horticulture class, each student has their own focal plant to reference when we discuss everything from how plants grow

Slipping Away to Global Flora

I recently went to the annual Amherst, Massachusetts Orchid Society show and was one of hundreds of people treated to an explosion of fantastical blossoms. With over 10,000 known species and even more artificial hybrids, any orchid show barely scratches the surface of this popular family.

Because of this worldwide fascination with orchids, certain species in the wild face collection pressure, illegal rustling, which can decimate wild populations to the point of extinction. Slipper orchids are among the most desirable and vulnerable.

The slipper orchids, a subfamily within the orchid family called the Cypripedioideae, is made up of 5 genera. *Paphiopedilum* (138 species) is found only in Asia; *Cypripedium* (58) in North America, Europe and Asia; *Phragmipedium* (29) in Central and South America; *Mexipedium*, a single species in Mexico; and *Selenipedium* (5) in Central and South America. Many Americans are familiar with slipper orchids having encountered species like the Pink Lady Slipper Orchid, *Cypripedium acaule*, in piney woods.

In compiling groupings of plants for the Global Flora conservatory, we sought species that highlight certain lessons of botany and horticulture. As “endangered species” is unfortunately a concept that is becoming more prevalent in biological disciplines, we decided to create a grouping of endangered terrestrial slipper orchids planted in an in-ground bed. Not only would they dazzle the casual visitor with their sublime flowers, but we could slip

in some educational text about rare and endangered species.

I knew that the United States Botanic Garden in Washington, D.C. had a diverse collection of these as they receive



Paphiopedilum haynaldianum

plants confiscated by the USDA as illegal shipments. After contacting William McLaughlin, the Curator of Plants, I traveled to D.C. to acquire whatever they could spare. I frankly was stunned by their generosity. Division after division filled my shopping cart and by the end of the day we amassed a spectacular collection of some of the rarest slipper orchids in existence. One donation, a division of *Mexipedium xerophyticum*, was particularly exciting and disappointing. Exciting, as I had never seen a live plant of this extremely rare species, and disappointing, as I had only seen photos of the flower and was surprised that the blooms were thumbnail size. Twenty-one donations were *Paphiopedilums* and as the majority of these species come from limestone substrate areas in the wild, we sought to recreate this in our construction of the bed. A mix of bark chips, marble chips, sphagnum peat and perlite was woven around old tufa rock, saved from the old greenhouses. The slipper orchid

species were planted within this, grouped by degree of endangeredness (as per IUCN rankings), from Threatened to Critically Endangered. All survived nicely and some began to flower immediately. We saved a few spots for species we will have to acquire from commercial sources such as the spectacular *Paphiopedilum sandermanum* and *P. rothschildianum* (a donation opportunity), but the willingness of the USBG to contribute to this educational planting is such a prime example of how botanic gardens strive to share and spread the crucial message of conservation.

Along with the slipper orchid we were given three other orchid species and divisions of 17 bromeliads which now grace the north wall of Global Flora. Seven other species, including the hard to come by Quinine, *Cinchona pubescens*, rounded out the day’s inventory. It was, as they say in the plant collecting field, a splendid haul.

by Rob Nicholson
Botanical Collections Manager

Slipper Orchids donated by the United States Botanic Garden and their IUCN rankings

Vulnerable:

Paphiopedilum hirsutissimum

Endangered:

Paphiopedilum armeniacum, *P. barbatum* var. *nigratum*, *P. glanuliferum*, *P. glaucophyllum*, *P. haynaldianum*, *P. insigne*, *P. lowii* var. *richardianum*, *P. malipoense*, *P. spicerianum*, *P. tonsum*

Critically Endangered:

Paphiopedilum exul, *P. henryanum*, *P. liemianum*, *P. primulinum* var. *purpurascens*, *P. victoria-mariae*, *P. victoria-regina*, *Mexipedium xerophyticum*

Learn With Us

Due to construction projects taking place at the Science Center, WCBG Friends' programs are now being held at the Massachusetts Horticultural Society or the Wellesley College Club.

Massachusetts Horticultural Society
The Gardens at Elm Bank
900 Washington St., Wellesley, MA 02482

Wellesley College Club
At the Route 16 (Washington St.) entrance to the college

Attendees for programs taking place at the Wellesley College Club can park at the College Club lots for the duration of the program. All other parking on campus is restricted to the Davis Parking Facility at the Rte. 135 entrance to the college.

- ◇ For classes over the lunch hour, bring your own lunch.
- ◇ Full course descriptions and materials lists may be found on our website.
- ◇ To register for classes fill out a registration form printed from our website: www.wellesley.edu/wcbg/learn

Due to concerns about the COVID-19 virus, some of our spring classes have been canceled. At this time, we still plan to hold our summer programs. Friends staff will be in contact in the case of further cancellations, and all registrants will receive a full refund.

Florilegium at Elm Bank

Join Sarah Roche and Lauren Meier in studying how to ID and draw the local flora at Mass Hort's Gardens at Elm Bank. Ink sketches will be enhanced by watercolor washes to record accurate color and detail. Dress appropriately for roaming around the grounds. Appropriate for all experience levels.

BAC 20 141

2 days: Tues., June 2 & Wed., June 3
 9:30 a.m.–3:30 p.m.
 Putnam classroom at Elm Bank
 Members \$250 | Non-Members \$300

Introduction to Botanical Art

Explore the world of botanical art in this course designed especially for you—the beginner. Sarah Roche guides your experience through structured exercises, projects and demonstrations, exposing you to the basic techniques and methods of botanical drawing and watercolor painting. All experience levels welcome.

BAC 20 101A

4 days: Mon., June 22–Thurs., June 25
 Mon.–Wed.: 9:30 a.m.–3:30 p.m.
 Thurs.: 9:30 a.m.–12:30 p.m.
 Cheney classroom at Elm Bank
 Members \$260 | Non-Members \$310

Painting Richly Colored Flowers on Vellum

Carol Woodin helps you perfect the techniques of painting on vellum. Many layers of drybrush watercolor will build fresh but rich color as well as well-observed detail. Suitable for experienced artists.

BAC 20 252

3 days: Mon., June 8 - Wed., June 10
 9:30 a.m.–3:30 p.m.

Cheney classroom at Elm Bank
 Members \$410 | Non-Members \$510
 (price includes vellum)



© Carol Woodin

Fun With Perspective: Learning the Basics

Explore the fundamentals of perspective with Carol Ann Morley. Examine how key shapes like the cube, cone, sphere and cylinder underlie all organic subjects and are the foundation of drawing. Beginner to experienced students welcome.

BAC 21 133X

2 days: Mon., Aug. 31 & Tues., Sept. 1
 9:30 a.m.–3:30 p.m.
 Putnam classroom at Elm Bank
 Members \$210 | Non-Members \$260

Drawing Flowers in Perspective

In this fun, skill-building class with Carol Ann Morley, enjoy drawing the flowers of summer in the classroom and garden as you depict their beauty in graphite with accurate dimensions and clarity of form.

BAC 21 134

3 days: Wed., Sept. 2 - Fri., Sept. 4
 9:30 a.m.–3:30 p.m.
 Putnam classroom at Elm Bank
 Members \$295 | Non-Members \$345

Farewell Tricia

In January, the Botanic Gardens said a fond farewell to Senior Gardens Horticulturist Tricia Diggins, who decided that nearly 30 years of dedication and battling invasives in the WCBG was enough and moved to a custodial position at the College. After graduating with a degree in environmental science from UMass and spending time as an intern at Garden in the Woods, Tricia started working at WCBG in September of 1990. Tricia's environmental training and love of nature informed her management of the 22 acres of outdoor gardens. Areas that used to be mowed weekly were now mowed once a season, to prevent soil compaction and create habitat. Pine needles were gathered to use as mulch. Pesticide treatments were kept to a bare minimum, and only used with careful consideration of their environmental impacts. Tricia regularly updated her skills and knowledge through conferences and workshops, and served for several years on the board of the Ecological Landscape Alliance. The notable biodiversity of the gardens is a testament to Tricia's ecologically sound practices.

Every summer, Tricia led a small crew of food service workers and student interns in garden maintenance tasks, balancing the varied needs of these groups with the needs of the gardens. She mentored many students over the years, teaching everything from the basics of pruning, plant identification and recognizing invasive weeds to making natural plant dyes and foraging for food in the gardens. She supported a range of educational uses of the gardens, whether it was growing Italian vegetables for an art history class or cultivating woad, a European dye plant, for a Davis Museum exhibition. She enjoyed creating exhibits for the Flower Show during the years that WCBG participated, and one of her exhibits received the Bulkley Medal, recognizing its exceptional educational and horticultural merit.

Tricia reports that she enjoys her new nighttime hours, which leave her more time for her home garden. We all wish her the best in her new position.

With work disruptions due to the pandemic, including student assistants going home mid-semester, Tricia is graciously stepping in to help with Global Flora's daily needs. We are lucky to have her working on campus and so grateful for her help!



Plant Party

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greenhouse and the plants within. I also enjoyed learning about different plants as I walked through the greenhouse. In particular, the docents were awesome!”

One of the goals of the Light Show is to invite the college community to Global Flora and remind people that an amazing collection of plants from around the world is here for them any time the conservatory is open. For some visitors, it might have been their first time in Global Flora, but definitely not their last. “I brought four of my friends,” Eva Paradiso shared. “Three of them had never been to the greenhouse before. The Light Show was a great way to introduce them to this beautiful resource that we have on campus!”

by Yuxi Xia '20, Dorothy Thorndike Intern

Remembering Alice Cestari

The Friends were saddened to learn of Alice Cestari's passing on January 29. Alice was known for her cheerful smile, the twinkle in her eye, and her passion for birds and gardens. She was a veteran leader of many birding walks around Wellesley, both on the campus and in the town. Starting in 1990, she led spring birding walks for the Friends, and later on did them for alumnae at Reunion. As a docent for both the greenhouses and gardens, Alice inspired groups of all ages with her plant knowledge and her stories. She was a wonderful storyteller, and her good humor and sense of fun made it a joy to be around her. Alice was ever ready to lend a hand, modelling the spirit of volunteerism. Her advice to new docents was simple: “If the Friends staff ask you to help, always say yes.”



Going, Going, Gone

Botanic gardens have often been compared to Noah's Ark, although this analogy is imprecise from both a genetic and biological standpoint. To truly conserve endangered species, botanic gardens need to move beyond single specimens. They would do well to mimic zoos, which carefully monitor genetics and mating lineages of rare creatures.

There are ranks of 'endangeredness', as constructed by the International Union for the Conservation of Nature, ranging from 'Near Threatened' to the dreaded 'Extinct in the Wild'. The



Annalise Michaelson prunes one of our *Brighamia insignis*.

Wellesley College Botanic Gardens carries in its collection plants veering towards extinction, but also three species that are no longer to be found in the natural world.

Within Global Flora are two— *Euphorbia mayurnathanii* and *Brighamia insignis*. *E. mayurnathanii* was only found on one cliff face in Pallassana, Kerala, India and was first described

by Leon Croizat in 1940, based on material collected by P.V. Mayurnathan. Three very old trees were found on a rocky ledge. As this area received tropical monsoon rains and the *Euphorbia* were a xerophytic species, it was postulated that the area was once much drier and that “the poorness of its numbers is indubitable testimony to the unsuitability of the environment.” Since the initial collection by Mayurnathan, the species has gone extinct and a number of searches failed to locate any plants. The plant is narrowly in cultivation, and we acquired our cutting from the Atlanta Botanical Garden. It now grows in the Dry Biome, a pointed example of how climate change can render an organism extinct.

In the Wet Biome of Global Flora, we recently planted two *Brighamia insignis* received from the United States Botanic Garden. This Hawaiian species is known as Alula in Hawaiian, or Cabbage on a Stick due to its appearance. In 1994, about 50 plants were known, but the last known wild individual was seen in 2014. Growing on steep slopes and cliffs, the species was buffeted by hurricanes and landslides. Feral pigs and goats added to its problem set. *Brighamia insignis*, unlike the *Euphorbia*, has lovely yellow tubular flowers with a honeysuckle scent. As we have two individuals, we can hopefully cross-pollinate and produce more seedlings for other gardens and conservatories.

Our third Extinct in the Wild plant resides outdoors in the Arboretum— *Franklinia alatamaha*. John and William Bartram discovered the species in 1765 in a three-acre sandy bog of Georgia's Altamaha River valley, and their cousin, Humphrey Marshall, named it after their close friend Benjamin Franklin. It was last seen in the wild a short 38 years later. Climate had little to do with the wild extinction of *Franklinia*; a surge in interest for the plant in London in the 1780s likely led to a mass removal from its small southern enclave. This deciduous shrub is in the same family as our *Camellia*, with sweet-smelling white-and-yellow flowers. It continues to survive in cultivation, where botanic gardens propagate it and catalog its finicky growing requirements.

Botanic gardens can't save the entirety of the critically endangered members of the plant kingdom two by two, but the preservation of this material serves as a harrowing reminder of rapidly accelerating global biodiversity loss. Much like climate change, plant extinction can be caused by a combination of environmental and human-led factors which are frequently intertwined. Botanic gardens, then, have a crucial role to not just be conservatory-arks but distribution centers of both rare plant material and accessible education.

by Annalise Michaelson '21, WCBG Curation Assistant
& Rob Nicholson, Botanical Collections Manager

Plant Health Team

Along with the new plants embedded in the new Global Flora conservatory came some visitors from the pest world along with our old ‘friends,’ the aphids, white flies and mealy bugs. How best to cope? And without insecticide, since the greenhouses have operated for years using integrated pest management (IPM) to control unwanted guests. Botanic Gardens Director Kristina Niovi Jones called in an IPM expert to help come up with a plan. He confirmed her assumption that plant health was improved when more eyes, especially experienced eyes, paid close attention to each individual plant leading to early detection of pests and easier treatment. So a student team was formed to help look after plants.

On a recent Monday morning, the weekly team meeting showed the plan in full force. The group is led by Kristina, and consists of Botanical Collections Manager Rob Nicholson, Senior Horticulturist Tony Antonucci and student interns on the Plant Health and Curation teams. There are a total of 14 paid interns this year with various assignments, many of them hands-on work with plants.

The meeting, fueled by bagels and cream cheese, kicked off with a general comment from Rob—students might find dry patches and trickier watering this week because he was in the process of digging peat into the soil in the wet biome to lower the pH to improve plants’ absorption of micro-nutrients. Connect with Tony or Rob for specific help.

Students then went around the table with plant observations that might be helpful to others. One student noted there was something fuzzy in the mangrove tank. She took a picture with her phone and uploaded it so it could be diagnosed. A weekend waterer commented on the warm temperatures and dry patches in the conservatory caused by the spring sun, starting a brief discussion of when to deploy the shades built in to the roof and whether to manually open some vents.



Emma Conrad-Rooney treats scale on a small palm.



Tony Antonucci explains to Emma how to brush scale insects off a plant.

The conversation then turned to the ferns that had been planted as ground cover in the wet biome. Should they be officially accessioned, that is, put into the IrisBG database? They are not now. Some ferns are happy and some are struggling, but which is which? They have not been given official green name tags like the specimen plants and their nursery name tags are well hidden in their foliage. There is a list of all ferns planted. If images were associated with the names then a useful fern identification sheet could be created—a new project! Finally Rob remarked on the tufa pots hanging on the north wall that fall off when the happy plants in them get too big and heavy. Should the fallen pots be replaced with felt instead of tufa?

What do the plant health team workers actually do? One of them, Emma Conrad-Rooney ’20, explains: “There are about half a dozen of us that work together to monitor the plants. We use an online spreadsheet to compile the data we collect. Over the course of a month, we try to monitor all of the plants in the greenhouse. So far, we have not officially assigned certain beds to certain students, but we tend to monitor beds that we’ve had experience working in. If I find a plant that, for example, has scale (like the *Euterpe edulis*) or aphids (like the *Gardenia tubifera*), I will mark in the spreadsheet that this plant “needs to be checked” and also describe what the problem might be. Then if there’s time, I may try to deal with the problem myself (e.g. using a toothbrush to brush off the scale or spraying soapy water onto the aphids). At the end of the day, I’ll type up a description of what I did that day and add all the plants that “need to be checked” to a “Needs Check” file, where more experienced staff will then go look at the plants. This notice gets sent to everyone on the Plant Health Team.”

With all this attention, the plants have a good chance to thrive and the interns know that their efforts are an important reason why.

Friends of WCBG

WELLESLEY COLLEGE BOTANIC GARDENS

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106 Central Street
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A New Camellia for the Botanic Gardens

Last fall, the Business Leadership Council of Wellesley College reached out to the Botanic Gardens with the offer of a gift to commemorate their 30th anniversary: a camellia. The Business Leadership Council (BLC) was formed in 1989 by a small group of alumnae who shared a common bond based on their positions of senior leadership in business and a Wellesley education that prepared them for it, according to the Wellesley Hive website. The BLC's purpose is to give back to the College, its constituents, and the wider community. It comprises over 200 alumnae globally.



Kristina Jones with our new hardy camellia 'Survivor.'

Botanic Gardens staff were gratified that the group chose to honor us in this way. Our venerable Durant camellia has a special place in its own Camellia Pavilion, and there is no room for a second camellia that requires greenhouse conditions. However, WCBG Director Kristina Jones pointed out that there are some recent varieties that have been bred to be more cold-hardy and potentially could even live outside in a sheltered area — unheard of for New England! It would make for “a very cool contrast of a modern, cold-hardy variety outside the antique Durant plant (apparently the oldest in New England) in its climate-controlled bubble,” she said.

At their November 8 meeting and anniversary celebration, the BLC made the generous gift of a cold-hardy camellia, 'Survivor' (*Camellia x 'Survivor'*), which bears single, white flowers in

October. It is hardy to our zone, USDA Zone 6a. At the ceremony, Kristina remarked that 'Survivor' could very well describe the members of the BLC in the business world. 'Survivor' is now planted in a sheltered location in the courtyard next to the Camellia Pavilion, where the two trees, old and new, can keep one another company.

Friends of WCBG

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